BOBBY JINDAL
GOVERNOR

HAROLD LEGGETT, PH.D.
SECRETARY

State of Louisiana

DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

Certified Mail No.:

Agency Interest No. 2448
Activity No.: PER20050002

Ms. Trinh Tran
Tennessee Gas Pipeline
Post Office Box 2511
Houston, Texas 77002

RE: Permit PSD-LA-725, Compressor Station 527, Tennessee Gas Pipeline, Port Sulphur, Plaquemines Parish, Louisiana

Dear Ms. Tran:

Enclosed is your permit, PSD-LA-725. Should you have any questions concerning the permit, contact Dan C. Nguyen at 225-219-3118.

Sincerely,

Cheryl Sonnier Nolan
Assistant Secretary

_____
Date

CSN: DCN

c: US EPA Region 6

PSD-LA-725
AI No. 2448

AUTHORIZATION TO CONSTRUCT AND OPERATE A NEW OR MODIFIED FACILITY PURSUANT TO THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS IN LOUISIANA ENVIRONMENTAL REGULATORY CODE, LAC 33:III.509

In accordance with the provisions of the Louisiana Environmental Regulatory Code, LAC 33:III.509,

Tennessee Gas Pipeline
Post Office Box 2511
Houston, Texas 77002

is authorized to operate the Compressor Station 527 near

Port Sulphur
Plaquemines Parish, Louisiana

subject to the emissions limitations, monitoring requirements and other conditions set forth hereinafter.

Signed this_____day of _____, 2009.

Cheryl Sonnier Nolan
Assistant Secretary
Office of Environmental Services

BRIEFING SHEET

COMPRESSOR STATION 527
AGENCY INTEREST NO.: 2448
TENNESSEE GAS PIPELINE
PORT SULPHUR, PLAQUEMINES PARISH, LOUISIANA
PSD-LA-725

PURPOSE

To obtain a Retroactive PSD permit for the 1998 Flash Gas Recovery Project.

RECOMMENDATION

Approval of the proposed permit.

REVIEWING AGENCY

Louisiana Department of Environmental Quality, Office of Environmental Services, Air Permits Division

PROJECT DESCRIPTION

Tennessee Gas Pipeline owns and operates the Compressor Station 527 which is classified as a major source under the PSD regulations. In 1998, Tennessee Gas Pipeline implemented the Flash Gas Recovery Project at the Compressor Station 527. The project includes an electric vapor recovery unit, an electric flash gas compressor unit, a flash gas vessel, a flare, and a flash vessel (converted from the existing T-13). Vents from the vessels are captured by the vapor recovery unit or burned at the flare. VOC emissions from Tank T-4 and associated condensate loading were also increased. Tank T-4 and associated condensate loading operations were damaged beyond repair during Hurricane Katrina in 2005 and were removed from service. Emissions from the project in tons per year are as follows:

Pollutant	Proposed	Contemporaneous Change	Net Change	PSD Significance Levels
PM_{10}	0.59	-	0.59	15
SO_2	0.05	-	0.05	40
NO_X	5.35	-	5.35	40
CO	29.10	-	29.10	100
VOC	116.57	- 46.89	+ 69.68	40

TYPE OF REVIEW

VOC emissions increased above the PSD significance level and were reviewed under the PSD regulations.

BRIEFING SHEET

COMPRESSOR STATION 527
AGENCY INTEREST NO.: 2448
TENNESSEE GAS PIPELINE
PORT SULPHUR, PLAQUEMINES PARISH, LOUISIANA
PSD-LA-725

BEST AVAILABLE CONTROL TECHNOLOGY

Maintaining the minimum heating value of the combusting gas at 300 BTU per standard cubic foot and maintaining the presence of a flame at the flare at all the times are determined as BACT for VOC emissions from the flare.

AIR QUALITY IMPACT ANALYSIS

VOC emissions from the project did not cause or contribute to any National Ambient Air Quality Standards (NAAQS) exceedances. Air quality analysis and monitoring are not required.

ADDITIONAL IMPACTS

Soils, vegetation, and visibility will not be adversely impacted by the project, nor will any Class I area be affected.

PROCESSING TIME

Application Dated:	March 30, 2005
Additional Information Dated:	January 18, 2006
Effective Completeness:	April 24, 2007

PUBLIC NOTICE

A notice requesting public comment on the proposed permit was published in *The Advocate*, Baton Rouge, and in the *XXX*, XXX, on XXX, 2009. The notice was also mailed to individuals and organizations on the mailing list of the facility and published in the Office of Environmental Services Public Notice Mailing List. The permit application and the proposed permit were submitted to the XXX Parish Library on XXX, 2009. The proposed permit was submitted to the US EPA Region 6. All comments will be considered prior to a permit decision.

PRELIMINARY DETERMINATION SUMMARY

COMPRESSOR STATION 527
AGENCY INTEREST NO.: 2448
TENNESSEE GAS PIPELINE
PORT SULPHUR, PLAQUEMINES PARISH, LOUISIANA
PSD-LA-725, FEBRUARY 17, 2009

I. APPLICANT

Tennessee Gas Pipeline
Post Office Box 2511
Houston, Texas 77002

II. LOCATION

Compressor Station is located at 26166 US Highway 23 South, Port Sulphur, Louisiana 70079. Approximate UTM coordinates are 235.50 kilometers East and 2368.00 kilometers North, Zone 16.

III. PROJECT DESCRIPTION

Tennessee Gas Pipeline owns and operates the Compressor Station 527 which is classified as a major source under the PSD regulations. In 1998, Tennessee Gas Pipeline implemented the Flash Gas Recovery Project at the Compressor Station 527. The project includes an electric vapor recovery unit, an electric flash gas compressor unit, a flash gas vessel, a flare, and a flash vessel (converted from the existing T-13). Vents from the vessels are captured by the vapor recovery unit or burned at the flare. VOC emissions from tank T-4 and associated condensate loading were also increased. However, Tank T-4 and associated condensate loading operations were damaged beyond repair during Hurricane Katrina in 2005 and were removed from service. Emissions from the project in tons per year are as follows:

Pollutant	Proposed	Contemporaneous Change	Net Change	PSD Significance Levels
PM_{10}	0.59	-	0.59	15
SO_2	0.05	-	0.05	40
NO_X	5.35	-	5.35	40
CO	29.10	-	29.10	100
VOC	116.57	- 46.89	+ 69.68	40

IV. SOURCE IMPACT ANALYSIS

A proposed net increase in the emission rate of a regulated pollutant above de minimis levels for new major or modified major stationary sources requires review under Prevention of Significant Deterioration regulations, LAC 33:III.509. PSD review entails the following analyses:

A. A determination of the Best Available Control Technology (BACT);

B. An analysis of the existing air quality and a determination of whether or not preconstruction or postconstruction monitoring will be required;

C. An analysis of the source's impact on total air quality to ensure compliance with the National Ambient Air Quality Standards (NAAQS);

D. An analysis of the PSD increment consumption;

E. An analysis of the source related growth impacts;

F. An analysis of source related growth impacts on soils, vegetation, and visibility;

G. A Class I Area impact analysis; and

A. BEST AVAILABLE CONTROL TECHNOLOGY

Under current PSD regulations, an analysis of "top down" BACT is required for the control of each regulated pollutant emitted from a modified major source in excess of the specified significant emission rates. The top down approach to the BACT process involves determining the most stringent control technique available for a similar or identical source. If it can be shown that this level of control is infeasible based on technical, environmental, energy, and/or cost considerations, then it is rejected and the next most stringent level of control is determined and similarly evaluated. This process continues until a control level is arrived at which cannot be eliminated for any technical, environmental, or economic reason. A technically feasible control strategy is one that has been demonstrated to function efficiently on identical or similar processes.

In 1998, Tennessee Gas Pipeline implemented the Flash Gas Recovery Project which includes an electric vapor recovery unit, an electric flash gas compressor unit, a flash gas vessel, a flare, and a flash vessel (converted from the existing T-13). Vents from the vessels are captured by the vapor recovery unit or burned at the flare. VOC emissions from the flare will be reviewed under the PSD regulations.

The flare is a control device for VOC from the vessels. Adding a device to control VOC emissions from the flare is not practical. The only option is maximizing the destruction efficiency of the flare by maintaining the minimum heating value of the combusting gas at 300 BTU per standard cubic foot and maintaining the presence of a flame at the flare at all the times. These are determined as BACT for VOC emissions from the flare.

B. ANALYSIS OF EXISTING AIR QUALITY

VOC emissions from the flare are less than 100 tons/year, air quality analysis, including dispersion modeling and monitoring is not required.

C. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ANALYSIS

VOC emissions from the flare are less than 100 tons/year; air quality analysis is not required.

D. PSD INCREMENT ANALYSIS

VOC emissions from the flare are less than 100 tons/year; air quality analysis is not required.

E. SOURCE RELATED GROWTH IMPACTS

Secondary growth effects of the project are minimal.

F. SOILS, VEGETATION, AND VISIBILITY IMPACTS

There will be no significant impact on soils, vegetation and visibility.

G. CLASS I AREA IMPACTS

The project is not expected to have any impact on the Breton National Wildlife Area.

H. TOXIC IMPACT

The selection of control technology based on the BACT analysis included consideration of control of toxic emissions.

V. CONCLUSION

The Louisiana Department of Environmental Quality, Office of Environmental Services, has made a preliminary determination to approve the retroactive PSD permit for Tennessee Gas Pipeline's Compressor Station 527 near Port Sulphur, Plaquemines Parish, Louisiana, subject to the attached specific and general conditions. In the event of a discrepancy in the provisions found in the application and those in this Preliminary Determination Summary, the Preliminary Determination Summary shall prevail.

SPECIFIC CONDITIONS

COMPRESSOR STATION 527
AGENCY INTEREST NO.: 2448
TENNESSEE GAS PIPELINE
PORT SULPHUR, PLAQUEMINES PARISH, LOUISIANA
PSD-LA-725

1. The permittee is authorized to operate in conformity with the specifications submitted to the Louisiana Department of Environmental Quality (LDEQ) as analyzed in LDEQ's document entitled "Preliminary Determination Summary" dated February 17, 2009 and subject to the following emission limitations. Specifications submitted are contained in the application and Emissions Inventory Questionnaire dated March 30, 2005, as well as additional information dated January 18, 2006.

MAXIMUM ALLOWABLE VOC EMISSION RATES				
EQT	**ID/EIQ**	**Capacity**	lbs/hr	tons/yr
EQT003	Flare		302.99	51.77

2. Permittee shall maintain minimum heat content of the flare gas at 300 BTU/scf. The heat content of the flare gas shall be determined annually. Records of the heat content of the flare gas shall be maintained on site and available for inspection by the Office of Environmental Compliance, Surveillance Division.

3. Permittee shall maintain the presence of a flame at the flare at all the times. The presence of the flame shall be monitored continuously. Records of the presence of the flame shall be maintained on site and available for inspection by Office of Environmental Compliance, Surveillance Division.

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.

II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.

III. The Emission Rates for Criteria Pollutants, Emission Rates for TAP/HAP & Other Pollutants, and Specific Requirements sections or, where included, Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Specific Requirements or, where included, Tables 2 and 3 of the permit. The synopsis is based on the application and Emission Inventory Questionnaire dated March 30, 2005 as well as additional information dated January 18, 2006.

IV. This permit shall become invalid, for the sources not constructed, if:

A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;

B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.

This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.

V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Air Permits Division.

VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Air Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.

VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used for testing shall have prior approval from the Office of Environmental Assessment, Air Quality Assessment Division.

VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up (or restart-up after modification). The Office of Environmental Assessment, Air Quality Assessment Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Air Quality Assessment Division within sixty (60) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.

IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Enforcement Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.

X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.

XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Enforcement Division with a written report as specified below.

A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.

B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.

C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs A or B above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:

1. Report by June 30 to cover January through March
2. Report by September 30 to cover April through June
3. Report by December 31 to cover July through September
4. Report by March 31 to cover October through December

D. Each report submitted in accordance with this condition shall contain the following information:

1. Description of noncomplying emission(s);
2. Cause of noncompliance;
3. Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance;
4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.

E. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107.

XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:

A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;

B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;

C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and

D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.

XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.

XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.

XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919 as well as notification requirements specified under LAC 33:III.927.

XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services in accordance with LAC 33:I.Chapter 19.Facility Name and Ownership/Operator Changes Process.

XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Air Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be approved as an authorized discharge, these very small releases must:

1. Generally be less than 5 TPY
2. Be less than the minimum emission rate (MER)
3. Be scheduled daily, weekly, monthly, etc., or
4. Be necessary prior to plant startup or after shutdown [line or compressor pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:I.3901.

XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Services Division
La. Dept. of Environmental Quality
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302

XIX. For Part 70 sources, certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two conditions.

COMPRESSOR STATION 527
AGENCY INTEREST NO.: 2448
TENNESSEE GAS PIPELINE
PORT SULPHUR, PLAQUEMINES PARISH, LOUISIANA
PSD-LA-725

TABLE I: BACT COST SUMMARY

Control Alternatives		Availability/ Feasibility	Negative Impacts (a)	Control Efficiency (%)	Emissions Reduction (TPY)	Annualized Cost ($/yr)	Cost Effectiveness ($/ton)	Incr. Cost Effectiveness ($/ton)	Notes
	(NA)								
Notes: a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety									

COMPRESSOR STATION 527
AGENCY INTEREST NO.: 2448
TENNESSEE GAS PIPELINE
PORT SULPHUR, PLAQUEMINES PARISH, LOUISIANA
PSD-LA-725

TABLE II: AIR QUALITY ANALYSIS SUMMARY ($\mu g/m^3$)

Poilutant	Averaging Period	Preliminary Screening	Significant Monitoring	Level of Significant Impact	At the Monitoring Station		Background	Maximum Modeled	Modeled + Background	NAAQS	Modeled PSD Increment Consumption	Allowable Class II PSD Increment
					Monitored Values	Modeling Results						
(NA)												
NAAQS = National Ambient Air Quality Standards NR = Not Required												

original to IOA
copy to BW MFG/Grp 2/ Davis

Tennessee Gas Pipeline
an El Paso company

MAIN FILE

January 18, 2006

Dr. Chuck Carr Brown
Assistant Secretary
Office of Environmental Services
Louisiana Department of Environmental Quality
P.O. Box 4313
Baton Rouge, La. 70821-4313

2006 JAN 23 PM 2:57

DEQ - OES

RE: Request for Administrative Amendment
Tennessee Gas Pipeline Company – Compressor Station 527
Title V Permit No. 1260-00020-V1, Agency Interest No. 2448

Dear Dr. Brown:

The Tennessee Gas Pipeline Company (TGP) owns and operates Compressor Station 527 in Port Sulphur, Louisiana in Plaquemines Parish. In March 2005, TGP submitted an Application for Minor Modification to the Title V Permit for the proposed Liquids Handling and VOC Emissions Control Project, which consists of the installation of a new liquid separator and modifications to storage and transfer equipment[1]. In addition to the proposed project, TGP also presented PSD analyses for two historical projects with the March 2005 application. During a permit review meeting on August 19, 2005[2], the LDEQ requested revisions in the PSD methodology utilized to estimate the project related emission increases for the two historical projects[3]. Due to time constraints associated with the proposed Liquids Handling and VOC Emissions Control Project, the LDEQ proposed to process the proposed project separately from the revised PSD analyses and subsequently, issued a minor modification to the Title V permit on September 13, 2005 authorizing the proposed project. As discussed during the August 19th meeting, TGP was to submit the revised PSD analyses for the historical projects according to the discussed methodology and present the findings via an Administrative Amendment Request.

TGP is submitting this request for Administrative Amendment to the Title V Permit to present the revised PSD analyses for the 1995 LACT Installation and the 1998 Flash Gas Recovery Project. In specific, TGP requests the referenced Title V Permit be amended to reflect air

[1] Modifications include the installation of a thermal oxidizer to control emissions associated with truck loading operations and replacement of the existing condensate storage tank with a new condensate storage tank to be equipped with a natural gas blanket system with sufficient pressure above the condensate liquid to prevent VOC vapors from escaping to the atmosphere.
[2] Attendees included Mr. Kermit Wittenburg (LDEQ Permit Writer) and Mr. Bryan Johnston (PSD permit lead) of the LDEQ and Ms. Trinh Tran (TGP) and Mr. Jeff McMenis (URS-consultant).
[3] Specifically, the LDEQ requested that emissions authorized by the 1996 Title V permit, utilized in determining creditable emissions, be revised from the 1996 emission calculation methodology to the current methodology for estimating actual and potential emissions.

Tennessee Gas Pipeline
1001 Louisiana Street Houston, Texas 77002
PO Box 2511 Houston, Texas 77252.2511
tel 713.420.2131

permitting activities for the 1995 and 1998 historical projects are deemed satisfactory and complete upon amendment. Additionally, TGP requests the permit reflects that Best Available Control Technology (BACT) to fulfill VOC control requirements under PSD requirements for the 1998 Flash Gas Recovery Project has been satisfied for the project related emission sources as identified in Table 4 of this submittal.

The attached request for Administrative Amendment includes the following:

a. Application text summarizing proposed changes to PSD analyses for the two historical projects; and,
b. Attachment A containing revised PSD Analyses to reflect the proposed changes in methodology.

TGP respectfully requests LDEQ to review the attached request for Administrative Amendment and incorporate the proposed changes into the Title V permit accordingly. A check in the amount of $300 is attached as fee payment as required under Chapter 201 of the Louisiana Administrative Code.

If you have any questions regarding this submission, please feel free to call me at (713) 420-7931.

Sincerely,

Trinh Tran
Principal Environmental Engineer

cc w/out attachment:
Harold Leggett, LDEQ Enforcement Division

cc w/attachment:
Compressor Station 527 Files/Air File (AQ 19.0)
Houston Environmental Files / LA / Station 527 / Title V Permit Application
Kermit Wittenburg, LDEQ Air Permits Division, via email
Rae Donaldson, Houma

Request for Administrative Amendment for Tennessee Gas Pipeline Compressor Station 527

A. Background

The Tennessee Gas Pipeline (TGP) owns and operates a natural gas compressor station, Compressor Station 527, located in Port Sulphur, Louisiana. The compressor station is currently operating under Title V federal operating permit (Title V Permit No. 1260-00020-V1), which was issued in September 2005 based on representations in the March 2005 Title V Permit Modification Application and subsequent information submitted in August 2005. In addition to presenting emission estimates for the proposed Liquids Handling and VOC Emissions Control Project, the March 2005 Title V Permit Modification Application also presented PSD analyses for historical projects conducted at the facility. With this request for Administrative Amendment, TGP is presenting revised emission estimates and PSD applicability analyses for the two historical projects based on guidance received from the LDEQ permitting staff. Additional details are provided in the following sections.

B. Historical Projects

1. 1995 LACT Installation

In 1995, TGP installed a second LACT unit in the truck loading area which enabled parallel truck loading operations from storage tank T-4.[1] The purpose of the project was to provide an alternative for truck loading operations during downtime of the existing LACT unit and also to increase the Station's capability to remove natural gas liquids (condensate and saltwater) during pigging operations. Although the LACT unit is itself not an emissions source, its installation resulted in increased truck loading capability and therefore, associated potential emissions of VOC.

2. 1998 Flash Gas Recovery Project

In 1998, TGP proposed and received authorization from the LDEQ[2] to initiate the Flash Gas Recovery Project to reduce flash emissions at the facility. The project consisted of the installation of the following equipment:

- One (1) 75 hp electric Vapor Recover Unit – C-1;
- One (1) 200 hp electric Flash Gas Compressor unit – C-2;
- One (1) 20,000 bbl Flash Gas Vessel – T-7A;
- One (1) 80 MMBtu/hr flare – FL-1A

Additionally, the 10,000 bbl condensate tank (T-13) was converted to a flash vessel (T-6), the emissions from which are controlled by either routing to the installed flash recovery equipment or routing to the new 80 MMBtu/hr flare. The previous 1.8 MMBtu/hr flare ceased operation upon installation of the new flare; however, it has not been removed from the facility. The project's scope also included the replacement of storage tank T-3, which was condemned due to corrosion with a 1,000 bbl tank identified as T-3A. As Tank T-3A stores saltwater, it qualifies as an Insignificant Activity exempt from permitting activity under Table A.10 of LAC 33:III.501.B.5. Additional information is provided in Section III.G. It should be noted that

[1] LACT units facilitate the transfer of VOC products from storage tanks (such as Tank-T4) to tanker trucks.

[2] Small Source Permit No. 2240-00009-01 issued on August 17, 1998.

the project enabled a reduction in actual emissions with a corresponding benefit to the environment via 100% control of flash gas from tanks T-6, T-7A and replacement of the plant flare.

C. Revised Retroactive PSD Analysis

In the March 2005 application, TGP presented a PSD analysis identifying the 1995 LACT Installation and the Flash Gas Recovery Project as major modifications for PSD as estimated emission increases for VOC for both projects were determined to be above the applicable PSD threshold of 40 tpy. TGP based this determination on its understanding of PSD regulations and best available data at the time of submittal. As part of the permitting review process, the LDEQ reviewed the PSD analysis and requested revisions in the methodology utilized to estimate the project related emission increases[3]. Specifically, the LDEQ requested that emissions authorized by the 1996 Title V permit, utilized in determining creditable emissions, be revised from the 1996 emission calculation methodology to the current methodology for estimating actual and potential emissions. TGP has incorporated the LDEQ's recommendations and revised the PSD analyses for both historical projects. Additional details related to the revisions are described in the following sections.

1. LACT Installation

In the March 2005 Title V Permit Modification Application, TGP identified the LACT Installation as a major modification as the estimated net VOC emission increases were determined to be above the PSD threshold of 40 tpy. Utilizing the revised PSD methodology specified by the LDEQ, the 1995 LACT Installation is not considered a major modification as project related emission increases were determined to be below the applicable PSD thresholds. As such, further review under the PSD regulations (i.e., PSD netting analysis, BACT determination, ambient air analysis, etc.) is not warranted. Attachment A contains the revised estimates of emission increases for the 1995 LACT Installation. The project related emission increases from this project are summarized in Table 1.

Table 1
LACT Installation PSD Threshold Comparison

Pollutant	PSD Significance Threshold (TPY)	Project Related Emissions Increase (TPY)	Netting Analysis Required? (Yes/No)
CO	100	0	No
NO_X	40	0	No
PM/PM_{10}	25/15	0	No
SO_2	40	0	No
VOC	40	13.61	No

2. Flash Gas Recovery Project

In the March 2005 Title V Permit Modification Application, TGP identified the Flash Gas Recovery Project as a major modification as the estimated net emission increases were determined to be above the PSD threshold of 40 tpy. Utilizing the revised PSD methodology recommended by

[3] The request for revision occurred during a meeting on August 19, 2005 with the LDEQ permit writer and PSD expert, Mr. Kermit Wittenberg and Mr. Bryan Johnston, respectively, and Ms. Trinh Tran (TGP) and Mr. Jeff McMenis (URS-consultant).

the LDEQ, a Netting Analysis for VOC is required as the project related emission increases due to the Flash Gas Recovery Project were determined to be above the applicable PSD threshold of 40 tpy. As CO, NOx, PM, and SO_2 project related emission increases are determined to be below the PSD Significance Thresholds, further analysis (i.e., PSD netting analysis) for these pollutants is not warranted. Attachment A contains the revised estimates of emission increases for the Flash Gas Recovery Project. The revised project related emission increases from this project are summarized in Table 2.

Table 2
Flash Gas Recovery Project PSD Threshold Comparison

Pollutant	PSD Significance Threshold (TPY)	Project Related Emissions Increase (TPY)	Netting Analysis Required? (Yes/No)
CO	100	29.10	No
NO_X	40	5.35	No
PM/PM_{10}	25/15	0.59	No
SO_2	40	0.05	No
VOC	40	116.57	Yes

The contemporaneous VOC emission increases were determined in the same manner as described in the March 2005 Title V Permit Modification Application. Table 3 summarizes the VOC emission changes that have occurred during the contemporaneous period, defined as August 1993 (five years prior to commencement of construction in August 1998) through March 1999 (start up of operation), including the emission increases and emission decreases from the 1998 Flash Gas Recovery Project, the LACT Installation and 1998 storage tank replacement as these projects occurred during the defined contemporaneous period. In summary, the Flash Gas Recovery Project emission increases plus the creditable, contemporaneous emissions changes is compared to the applicable threshold specified by PSD regulations. As shown in Table 3, the calculated net emission changes for the project were determined to result in a net increase above the PSD significance threshold for VOC; consequently, the 1998 Flash Gas Recovery Project should be considered a major modification.

Table 3
Flash Gas Recovery Project
Contemporaneous VOC Emission Changes

Date of Start-up	Project Name	Net VOC Emissions Increase (tpy)
March 1999	Flash Gas Recovery Project	56.06[4]
January 1998	Used Oil Tank Replacement	Insignificant[5]

[4] The Flash Gas Recovery Project had project related emission increases of 116.56 tpy. Creditable emission decreases for the project equal 60.50 tpy. Accordingly the net VOC emissions increase equals to 56.06. Additional details are provided in Attachment A.

[5] This tank qualifies as insignificant under LAC 501.B.5 and therefore was exempt from permitting activities. Emissions associated with the installation are considered negligible with no regulatory applicability and therefore are not considered creditable changes toward the contemporaneous period.

Date of Start-up	Project Name	Net VOC Emissions Increase (tpy)
August 1995	LACT Installation	13.61
Total		**69.67**

Although the net VOC emission increases have been revised based on the guidance provided by the LDEQ permitting staff, the determination that the 1998 Flash Gas Recovery Project should be considered a major modification is consistent with the findings in the March 2005 Title V Permit Modification Application. Further review under the PSD regulations (i.e., BACT determination, ambient air analysis, etc.) is presented in the following sections.

a. VOC PSD Requirements

Federal PSD regulations (40 CFR 52) and Louisiana PSD regulations (LAC 33:III.509) require that a Best Available Control Technology (BACT) analysis, Air Quality Analysis and an Additional Impact Analysis be performed for each pollutant, which exceeds the PSD significance threshold. The following sections document the results of these analyses.

i. VOC BACT Analysis

Any major stationary source or major modification subject to PSD must conduct an analysis to ensure the implementation of BACT. The requirement to conduct a BACT analysis can be found in the Clean Air Act itself,[6] in the federal regulations implementing the PSD program,[7] in the regulations governing federal approval of State PSD programs,[8] and in the SIP of the various states.[9] BACT is defined as

> *...an emission limitation (including a visible emissions standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.*[10]

[6] CAA Section 165(a)(4).
[7] See, e.g., 40 CFR § 52.21(j).
[8] See, e.g., 40 CFR § 51.166(j).
[9] 40 CFR Part 52, Subpart A - Subpart FFF.
[10] 40 CFR §52.21 (j).

The BACT requirement applies to each individual new or modified affected emissions unit and pollutant emitting activity from which a net emissions increase occurs[11]. Individual BACT determinations are performed on a unit-by-unit, pollutant-by-pollutant basis.[12] As detailed in Table 3, the Flash Gas Recovery Project warrants BACT analysis because the net emissions increase from the project were determined to exceed the significant emission rates for VOC established in 40 CFR 52.21(b)(23)(i).

On December 1, 1987 the U.S. EPA Assistant Administrator for Air and Radiation issued a memorandum that implemented certain program initiatives to improve the effectiveness of the PSD and NSR programs within the confines of existing regulations and SIP.[13] Among the initiatives was a "top-down" approach for determining BACT. In brief, the top-down process requires that all available control technologies be ranked in descending order of control effectiveness.[14] The most stringent or "top" control option is *per se* BACT unless the applicant demonstrates, and the permitting authority in its informed opinion agrees, that energy, environmental, and/or economic impacts justify the conclusion that the most stringent control option is not achievable in that case.[15] Upon careful and considered elimination of the most stringent control option based upon energy, environmental, and/or economic considerations, the next most stringent alternative is evaluated in the same manner.[16] This procedure continues until BACT is selected.[17] The five steps in a BACT evaluation can be summarized as follows:

1. Identify potentially applicable control technologies;
2. Eliminate technically infeasible control technologies;
3. Rank the remaining control technologies based on emission reduction potential;
4. Evaluate the ranked controls based upon energy, environmental, and/or economic considerations; and
5. Select BACT.

a. VOC BACT Analysis

This section presents a BACT analysis for the following sources, which were modified/installed as part of the Flash Gas Recovery Project: T-4 and T-13 storage tanks, T-7A flash vessel, and FL-1A flare. These sources are subject to BACT review for each of the pollutants that the netting analysis indicated the PSD significance threshold was exceeded (i.e., VOC).

Table 4 presents a summary of the proposed BACT for the sources modified or installed as part of the Flash Gas Recovery Project.

---

[11] U.S. EPA, *New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting (Draft)*, Research Triangle Park (1990) at B2 (hereinafter "PSD Manual").

[12] Id.

[13] See generally U.S. EPA, Office of Air and Radiation, *Memorandum from J.C. Potter to the Regional Administrators*, Washington, D.C. (December 1987).

[14] *PSD Manual* at B2.

[15] Id.

[16] *PSD Manual* at B2.

[17] Id.

Table 4
Flash Gas Recovery Project
VOC BACT Summary

Source ID Number	Source Description	Pollutant	Control Technology/Work Practice
T-13	Condensate Storage Tank	VOC	Conversion to Flash Vessel T-6; Control via compression and reinjection (100% control) or Alternatively, route to flare (98% control)[18]
T-7A	Flash Vessel	VOC	Control via compression and reinjection (100%) or Alternatively, route to flare (98% control)
T-4	Condensate Storage Tank	VOC	Replacement with similar storage capacity storage tank T-4A
FL-1A	Facility Flare	VOC	98% control efficiency

(1) Condensate Storage Tank VOC BACT

The condensate storage tank T-4 was modified as part of the Flash Gas Recovery Project. Under current operating scenarios, VOC emissions from condensate storage tank T-4 at Compressor Station 527 are a result of breathing and working losses during normal storage vessel operations. The T-4 condensate storage tank is proposed to be dismantled and deleted with this application; as such, controls are not proposed for the storage vessel. It should be noted that a similar capacity storage tank will be installed as part of the Liquids Handling and VOC Emissions Control Project to replace T-4. Emissions from the new storage tank will be controlled via a nitrogen gas blanket system.

As part of the 1998 Flash Gas Recovery Project, condensate storage tank T-13 was converted to Flash Vessel T-6. A Vapor Recovery Compressor (C-1) routes vapors from the Flash Vessel to either the C-2 Flash Gas Compressor for injection into the natural gas pipeline or to the flare for control. Conversion to Flash Vessel T-6 with recovery of vapors via the C-2 Compressor or control of vapors via the FL-1A flare is proposed as BACT for condensate storage tank T-13.

(2) Flash Vessel VOC BACT

As part of the 1998 Flash Gas Recovery Project, Flash Vessel T-7A was installed at Station 527. The C-1 Compressor routes vapors from the Flash Vessel to either the C-2 Compressor for reinjection into the natural gas pipeline or to the flare for control. Recovery of vapors via the C-2 Compressor or control of vapors via the FL-1A flare is proposed as BACT for Flash Vessel T-7A.

(3) Flare VOC BACT

The facility flare (FL-1A) was installed at the facility in 1998 to replace the undersized existing flare. The FL-1A flare is sufficiently sized to control flash vapors

[18] Vapors are routed to flare during downtime of flash gas compression equipment or when capacity of compression equipment is exceeded.

associated with the high liquid throughputs during pipeline pigging or slugging events. The flare has a destruction efficiency of 98% which is proposed as BACT for emission sources T-6 and T-7A.

ii. VOC Air Quality and Visibility Analyses

The PSD regulations require that the permittee ensure that the impacts of a proposed PSD project do not negatively impact the air quality and/or the visibility of the surrounding area. In accordance with Table C-4 of the New Source Review Workshop Manual (October 1990) and the LDEQ Air Quality Modeling Procedures, an ambient impact analysis is required for net increases of 100 tpy of VOC to demonstrate compliance with the ozone NAAQS. The Flash Gas Recovery did not result in emission increases exceeding 100 tpy VOC. As such, an ambient impact analysis is not required for the Flash Gas Recovery Project.

iii. VOC Additional Impact Analysis

Impacts on commercial and residential growth in the surrounding area due to the Flash Gas Recovery Project are considered negligible. Although the Flash Gas Recovery Project did involve the addition of a 20,000 bbl storage tank and the replacement of the facility flare, TGP believes that the effect on air quality due to residential growth was minimal.

Additionally, the PSD draft guidelines prescribe that the potential impacts of the proposed project on the soils and vegetation in the vicinity of the facility should be considered. As the monitored ozone concentrations at the New Orleans area monitoring sites demonstrate that a NAAQS violation did not occur prior to or after the project, the impacts on soil and vegetation in the area surrounding Compressor Station 527 are considered negligible. In addition, the LDEQ has concluded that Louisiana does not have soil types that would be considered sensitive to concentrations of criteria pollutants that are less than the NAAQS.

TGP Station 527
Port Sulphur, Louisiana
1995 LACT Installation - VOC PSD Analysis

Calculations prepared by: Jeff McMenis
Date: October 2005

Discussion

The summary table presented below presents the PSD analysis for the 1995 installation of the second LACT unit. This PSD analysis utilizes 1993 and 1994 as the baseline years as these are the two preceding years to the installation. As throughputs for those years were not available, emissions based on 1995 liquid throughputs have been recalculated and utilized instead. Potential emissions have been recalculated based on the liquid throughputs stated in the 1996 Title V permit and the updated methodology utilized in estimating the past actual emissions. Note that the Creditable Actual VOC Emissions have been determined based on guidance from the LDEQ permit writer in that the 1996 Title V emissions should be compared to actual emissions in the determination of baseline creditable emissions.

Source ID	1993/1994 VOC Actual Average Emissions (tpy)[1]	Permitted VOC Emissions (tpy)[2]	Potential VOC Emissions (tpy)[3]	Creditable Actual VOC Emissions (tpy)[4]	Net VOC Emissions Increase (tpy)
T-4	26.57	24.48	24.48	24.48	0.00
LOAD	8.64	22.25	22.25	8.64	13.61
			Project Related Increases (tpy):		**13.61**
			Project Related Decreases (tpy):		**0.00**
			PSD Significance Threshold (tpy):		**40.00**
			Is Project Significant for VOC?		**NO**

[1] 1993 and 1994 annual emissions were not available and therefore, emissions were estimated based on 1995 liquid throughput. As liquid throughputs rose throughout the 1990s, utilizing 1995 data provides a best-case estimate of emissions for 1993/1994. Note that the utilization of 1995 throughput does not alter the determination that emission increases do not exceed the PSD Significance Threshold.

[2] This project occurred prior to the Louisiana Title V Air Permit Program (i.e., grandfathered sources). At the time of the project, these sources did not operate under a state operating permit and allowable emissions had not been established. Based on guidance from the LDEQ permitting staff, Title V permitted emissions (which have been recalculated to be consistent with the updated calculation methodology) should be utilized in estimating the allowable emissions and in comparison against actual emissions for determination of creditable emissions.

[3] Based on guidance from the LDEQ permitting staff, potential emissions are based on the liquid throughputs specified in the 1996 Title V permit and are estimated utilizing the updated calculation methodology employed in estimating baseline emissions.

[4] If actual emissions are above the permitted emission rates, only the permitted rates can be credited as past actual emissions.

TGP Station 527

Port Sulphur, Louisiana

Flash Gas Recovery Project -VOC PSD Analysis

Calculations prepared by: Jeff McMenis
Date: October 2005

Discussion

The summary table presented below presents the PSD analysis for the August 1998 Flash Gas Recovery Project. This retroactive PSD analysis utilizes 1996 and 1997 as the baseline years as these are the two preceding years to on-site construction. In instances where the past actual emissions have been recalculated using the updated methodology (T-4 storage tank, the T-6/T-13 storage tank, and loading emissions), the permitted emissions have also been recalculated based on the updated methodology and operating rates stated in the 1996 Title V permit. The past actual emissions for the T-4 and T-13 storage tanks, the flare, and truck loading activities exceed the recalculated allowable emissions; therefore, in accordance with PSD guidance as outlined in the New Source Review Manual (October 1990), the creditable baseline emissions for these sources are the allowable emission rates. Potential emissions have been recalculated based on the liquid throughputs experienced in 1999, which are the highest liquid throughputs on record. At a minimum, the potential to emit for the two storage tanks and truck loading would be equal to emissions associated with that liquid throughput.

Source ID	1996/1997 VOC Actual Average Emissions (tpy)[1]	1996 Title V Permitted VOC Emissions (tpy)[2]	Potential VOC Emissions (tpy)[3]	Creditable Actual VOC Emissions (tpy)[4]	Net VOC Emissions Increase (tpy)
T-3	6.5	8.72	0	6.5	-6.5
T-3a	N/A	N/A	-	-	-
T-4	44.76	24.48	63.36	24.48	38.88
T-13/T-6	355.65	53.61	0	53.61	-53.61
FL-1	2.85	0.39	0	0.39	-0.39
LOAD	24.97	22.25	88.93	22.25	66.68
FL-1A	N/A	N/A	11.01	0	11.01
			Project Related Increases (tpy):		**116.57**
			Project Related Decreases (tpy):		**-60.50**
			PSD Significance Threshold (tpy):		**40.00**
			Is Project Significant for VOC?		**YES**

[1] 1996 and 1997 annual emissions were recalculated based on the updated calculation methodology. Note that emissions for T-3 were not recalculated as historical throughputs were not available. In addition, 1996 flare data was not available. As such, EI reported emissions were utilized for T-3 for 1996 & 1997 and for FL-1 for 1996.

[2] Based on guidance from the LDEQ permitting staff, Title V permitted emissions should be recalculated to be consistent with the updated calculation methodology if the updated methodology is employed in estimating actual emisions. As such, permitted emissions for T-4, T-13/T-6, and LOAD have been recalculated using the updated methodology and the operating rates specified in the permit.

[3] Potential emissions for T-4 and LOAD are based on the liquid throughputs experienced in 1999, which are the highest liquid throughputs on record. At a minimum, the potential to emit of these sources would be equal to the recalculated actual emissions from 1999. It should be noted that the flare was not operational for a full calendar year until 2000; therefore, the potential emissions for the flare are based on recalculated emissions for 2000. Potential emissions for T-3, T-13/T-6 and FL-1 are equal to zero as these sources were either removed from service (FL-1 and T-3) or controlled following the project (T-13/T-6)

[4] If actual emissions are above the currently permitted emission rates (T-4, T-13/T-6, and LOAD), only the permitted rates can be credited as past actual emissions.

TGP Station 527

Port Sulphur, Louisiana

Flash Gas Recovery Project - NOx PSD Analysis

Calculations prepared by: Jeff McMenis
Date: October 2005

Discussion

The summary table presented below presents the PSD analysis for the August 1998 Flash Gas Recovery Project. This PSD analysis utilizes 1996 and 1997 as the baseline years as these are the two preceding years to on-site construction. The average of 1996 and 1997 actual emissions for the existing flare exceed the allowable emissions (December 1996 Title V Permit No. 2240-0009-V0); therefore, in accordance with PSD guidance as outlined in the New Source Review Manual (October 1990), the creditable baseline emissions for these sources are the allowable emission rates.

Source ID	1996/1997 NOx Actual Average Emissions (tpy)[1]	1996 Title V Permitted NOx Emissions (tpy)	Potential NOx Emissions (tpy)[2]	Creditable Actual NOx Emissions (tpy)[3]	Net NOx Emissions Increase (tpy)
FL-1	1.15	0.55	0	0.55	-0.55
FL-1A	N/A	N/A	5.35	0	5.35
			Project Related Increases (tpy):		**5.35**
			Project Related Decreases (tpy):		**-0.55**
			PSD Significance Threshold (tpy):		**40.00**
			Is Project Significant for NOx?		**NO**

[1] Note that 1996 flare data was not available. As such, EI reported emissions were utilized for 1996 & flare emissions were recalculated for 1997.

[2] It should be noted that the flare was not operational for a full calendar year until 2000 (highest flare emissions since installation); therefore, the potential emissions for the flare are based on recalculated emissions for 2000. At a minimum, the potential emissions would be equal to the actual emissions from 2000.

[3] If actual emissions are above the currently permitted emission rates (FL-1), only the permitted rates can be credited as past actual emissions.

TGP Station 527

Port Sulphur, Louisiana

Flash Gas Recovery Project - CO PSD Analysis

Calculations prepared by: Jeff McMenis
Date: October 2005

Discussion

The summary table presented below presents the PSD analysis for the August 1998 Flash Gas Recovery Project. This PSD analysis utilizes 1996 and 1997 as the baseline years as these are the two preceding years to on-site construction. The average of 1996 and 1997 actual emissions for the existing flare exceed the allowable emissions (December 1996 Title V Permit No. 2240-0009-V0); therefore, in accordance with PSD guidance as outlined in the New Source Review Manual (October 1990), the creditable baseline emissions for these sources are the allowable emission rates.

Source ID	1996/1997 CO Actual Average Emissions (tpy)[1]	1996 Title V Permitted CO Emissions (tpy)	Potential CO Emissions (tpy)[2]	Creditable Actual CO Emissions (tpy)[3]	Net CO Emissions Increase (tpy)
FL-1	3.56	2.92	0	2.92	-2.92
FL-1A	N/A	N/A	29.10	0	29.10
			Project Related Increases (tpy):		**29.10**
			Project Related Decreases (tpy):		**-2.92**
			PSD Significance Threshold (tpy):		**40.00**
			Is Project Significant for CO?		**NO**

[1] Note that 1996 flare data was not available. As such, EI reported emissions were utilized for 1996 & flare emissions were recalculated for 1997.

[2] It should be noted that the flare was not operational for a full calendar year until 2000 (highest flare emissions since installation); therefore, the potential emissions for the flare are based on recalculated emissions for 2000. At a minimum, the potential emissions would be equal to the actual emissions from 2000.

[3] If actual emissions are above the currently permitted emission rates, only the permitted rates can be credited as past actual emissions.

TGP Station 527

Port Sulphur, Louisiana

Flash Gas Recovery Project - PM PSD Analysis

Calculations prepared by: Jeff McMenis
Date: October 2005

Discussion

The summary table presented below presents the PSD analysis for the August 1998 Flash Gas Recovery Project. This PSD analysis utilizes 1996 and 1997 as the baseline years as these are the two preceding years to on-site construction.

Source ID	1996/1997 PM Actual Average Emissions (tpy)[1]	1996 Title V Permitted PM Emissions (tpy)	Potential PM Emissions (tpy)[2]	Creditable Actual PM Emissions (tpy)[3]	Net PM Emissions Increase (tpy)
FL-1	0.07	0.08	0	0.07	-0.07
FL-1A	N/A	N/A	0.59	0	0.59
			Project Related Increases (tpy):		**0.59**
			Project Related Decreases (tpy):		**-0.07**
			PSD Significance Threshold (tpy):		**15.00**
			Is Project Significant for PM?		**NO**

[1] Note that 1996 flare data was not available. As such, EI reported emissions were utilized for 1996 & flare emissions were recalculated for 1997.

[2] It should be noted that the flare was not operational for a full calendar year until 2000 (highest flare emissions since installation); therefore, the potential emissions for the flare are based on recalculated emissions for 2000. At a minimum, the potential emissions would be equal to the actual emissions from 2000.

[3] If actual emissions are above the currently permitted emission rates, only the permitted rates can be credited as past actual emissions.

TGP Station 527

Port Sulphur, Louisiana

Flash Gas Recovery Project - SO_2 PSD Analysis

Calculations prepared by: Jeff McMenis
Date: October 2005

Discussion

The summary table presented below presents the PSD analysis for the August 1998 Flash Gas Recovery Project. This PSD analysis utilizes 1996 and 1997 as the baseline years as these are the two preceding years to on-site construction.

Source ID	1996/1997 SO_2 Actual Average Emissions (tpy)[1]	1996 Title V Permitted SO_2 Emissions (tpy)	Potential SO_2 Emissions (tpy)[2]	Creditable Actual SO_2 Emissions (tpy)[3]	Net SO_2 Emissions Increase (tpy)
FL-1	0.006	0.004	0	0.004	-0.004
FL-1A	N/A	N/A	0.05	0	0.05
			Project Related Increases (tpy):		**0.05**
			Project Related Decreases (tpy):		**-0.004**
			PSD Significance Threshold (tpy):		**40.00**
			Is Project Significant for SO_2?		**NO**

[1] Note that 1996 flare data was not available. As such, EI reported emissions were utilized for 1996 & flare emissions were recalculated for 1997.

[2] It should be noted that the flare was not operational for a full calendar year until 2000 (highest flare emissions since installation); therefore, the potential emissions for the flare are based on recalculated emissions for 2000. At a minimum, the potential emissions would be equal to the actual emissions from 2000.

[3] If actual emissions are above the currently permitted emission rates, only the permitted rates can be credited as past actual emissions.

TGP Station 527

Port Sulphur, Louisiana

Flash Gas Recovery Project - Contemporaneous Window

Calculations prepared by: Jeff McMenis
Date: October 2005

Discussion

The contemporaneous period for the Flash Gas Recovery Project has been identified as August 1993 (five years prior to construction commencement) to March 1999 (start up of operation). In 1998 TGP installed an insignificant storage tank. Furthermore, the LACT Installation occurred in 1995. Creditable emission increases are outlined below.

Project	Baseline VOC Actual Average Emissions (tpy)	Permitted VOC Emissions (tpy)	Potential VOC Emissions (tpy)	Creditable Actual VOC Emissions (tpy)	Net VOC Emissions Increase (tpy)
LACT Installation	35.21	46.73	46.73	33.12	13.61
New Oil Tank	0	0	Insignificant	0	Insignificant

Recalculated Permitted Emissions

TGP Station 527
Port Sulphur, Louisiana
Re-calculation of Permitted Emissions

Calculations prepared by: Jeff McMenis
Date: October 2005

Based on feedback from the LDEQ permitting staff, when actual emissions have been recalculated based on the updated methodology, the allowable emissions (Title V permit) are also to be re-calculated based on the same methodology and the operating rates specified in the Title V permit. The following presents the recalculated permitted emissions for the T-6 Storage Tank, T-4 Storage Tank, and Truck Loading Activities.

Storage Tank Emissions Estimate Basis

Tank T-4, a 2,000 bbl storage tank, is used to store condensate prior to transfer out of facility via tanker truck. Tank T-6, a 10,000 bbl storage tank, stores condensate prior to transfer to Tank T-4. As flash emissions from the T-6 storage tank were not authorized via the 1996 Title V permit, only working and breathing emissions are estimated in determining the appropriate recalculated permitted emissions. From the 1998 Emissions Netting Calculations, 65.96% by weight of vapors from the storage tank is VOC (Reference is HYSIS model). The USEPA's TANKS 4.0 database was used to calculate the breathing and working losses. Liquids sampling at Station 527 (7/18/00) indicated that the condensate stored at the facility can reach RVP 12.5 psi; therefore, vapor pressures of Gasoline (RVP13) were utilized (Condensate and Gasoline have similar vapor pressures) in the TANKS program to estimate emissions. A Molecular Weight of 98.51 lb/lb.mole is utilized based on liquids sampling conducted on 3/30/99.

	Storage Tank T-6	Storage Tank T-4	Notes
Permitted Throughputs (gallons)	1176000	1176000	Specified on the EIQ sheet (for each storage tank) in the Title V permit.
Working/Breathing Losses (lbs)	162548	48953	Estimated utilizing TANKS 4.0 (utilizing vapor pressures of Gasoline (RVP13) and molecular weight of 98.51 lb/lb.mole.
Working/Breathing VOC Emissions (lbs)	107217	48953	VOC emissions for T-6 are estimated by multiplying the total emissions generated by the TANKS program by the 65.96% weight percent VOC established in the 1998 Emissions Netting Calculations. VOC emissions for T-4 are equal to the emissions generated by the TANKS program as vapors from T-4 are assumed to be 100% VOC.
Total Emissions (tpy)	**53.61**	**24.48**	

Truck Loading Emissions Estimate Basis

Condensate is transferred out of the facility using tanker trucks, which require loading. VOC emissions will occur during these transfer operations. VOC emissions are estimated utilizing equations from AP-42, Chapter 5.2 (Marketing of Petroleum Liquids). Physical properties (vapor pressure, molecular weight, etc.) of the condensate are based on the TANKS emission summary sheets. Permitted throughput is specified on the EIQ sheet in the Title V permit.

Chemical	Vapor Mol. Wt. (lb/lb.mole)[1]	Avg. Vapor Pressure (psia)[1]	Avg. Temp (deg. F)[1]	Saturation Factor[2]	Loading Loss (lbs/Mgall)[3]
Condensate	98.51	9.172	75.45	0.6	12.62

Permitted Throughput (Mgals)	Annual Emissions (tpy)
3528	22.25

Recalculated Permitted Emission

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	TGP Station 821 Tank T13 (1996 permit)
City:	Port Sulphur
State:	Louisiana
Company:	Tennessee Gas Pipeline Company
Type of Tank:	Vertical Fixed Roof Tank
Description:	Recalculated 1996 Permit Emissions

Tank Dimensions

Shell Height (ft):	24.00
Diameter (ft):	55.00
Liquid Height (ft):	24.00
Avg. Liquid Height (ft):	12.00
Volume (gallons):	426,539.93
Turnovers:	2.76
Net Throughput (gal/yr):	1,176,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition:	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft):	0.00
Slope (ft/ft) (Cone Roof):	0.00

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig):	0.00

Meteorological Data used in Emissions Calculations: New Orleans, Louisiana (Avg Atmospheric Pressure = 14.75 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf Temperatures (deg F) Avg	Min	Max	Liquid Bulk Temp (deg F)	Vapor Pressures (psia) Avg	Min	Max	Vapor Mol Weight	Liquid Mass Fract	Vapor Mass Fract	Mol Weight	Basis for Vapor Pressure Calculations
Pipeline Condensate - 527	All	75.45	66.56	84.34	70.28	9.1720	7.8158	10.6807	98.5000			98.50	Option 1: VP70 = 8.3 VP80 = 9.9

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Pipeline Condensate - 527	25,296.37	138,914.96	164,211.33

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	TGP Station 821 Tank T4 (potential-post LACT)
City:	Port Sulphur
State:	Louisiana
Company:	Tennessee Gas Pipeline Company
Type of Tank:	Vertical Fixed Roof Tank
Description:	Recalculated Potential Emissions (1995 TV permit throughput)

Tank Dimensions

Shell Height (ft):	19.00
Diameter (ft):	27.00
Liquid Height (ft):	19.00
Avg. Liquid Height (ft):	16.00
Volume (gallons):	81,377.47
Turnovers:	14.45
Net Throughput (gal/yr):	1,176,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition:	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft):	0.00
Slope (ft/ft) (Cone Roof):	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: New Orleans, Louisiana (Avg Atmospheric Pressure = 14.75 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Pipeline Condensate - 527	All	75.45	66.56	84.34	70.28	9.1720	7.8188	10.6807	98.5000			98.50	Option 1: VP70 = 8.3 VP80 = 9.9

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Pipeline Condensate - 527	25,296.37	23,656.96	48,953.33

Recalculated Historical Emissions

TGP Station 527

Port Sulphur, Louisiana

Re-calculation of 1995 - 2003 Storage Tank Emissions

Calculations prepared by: Jeff McMenis
Date: October 2005

Storage Tank Emissions Estimate Basis

Tank T-4, a 2,000 bbl storage tank, is used to store condensate prior to transfer out of facility via tanker truck. Tank T-6, a 10,000 bbl storage tank, stores condensate prior to transfer to Tank T-4. As there does not appear to have been any flash gas recovery prior to the 1998/1999 project, uncontrolled flash emissions would have occurred. From the 1998 Netting Analysis a flash factor of 9.082 lb/bbl is utilized to estimate flash emissions from Tank T-6. Of this amount, 65.96% by wt is VOC (Reference is HYSIS model). As flash emissions were not quantified for Tank T-4 in the 1998 Emissions Netting Calculation, it is assumed that no flash emissions occurred from that source. The USEPA's TANKS 4.0 database was used to calculate the breathing and working losses. Liquids sampling at Station 527 (7/18/00) indicated that the condensate stored at the facility can reach RVP 12.5 psi; therefore, vapor pressures of Gasoline (RVP13) were utilized (Condensate and Gasoline have similar vapor pressures) in the TANKS program to estimate emissions. A Molecular Weight of 98.51 lb/lb.mole is utilized based on liquics sampling conducted on 3/30/99. Throughput for Tank T-3 from 1995 to 1999 was not available. The unit was replaced with T-3a in 1999, which has not been utilized.

Summary of Historical Throughputs (1995 - 2004)

Year	Facility Throughput (bbls)	Facility Throughput (gals)	T-6 Throughput (gals)	T-4 Throughput (gals)	T-3 Throughput (gals)	T-3a Throughput (gals)
1995	32631	1,370,502	1,370,502	1,370,502	N/A	
1996	67504	2835168	2,835,168	2,835,168	N/A	
1997	120996	5,081,832	5,081,832	5,081,832	N/A	
1998	329,300	13,830,600	13,830,600	13,830,600	N/A	
1999	335,687	14,098,854	14,098,854	14,098,854		0
2000	250,105	10,504,423	10,504,423	10,504,423		0
2001	216,195	9,080,172	9,080,172	9,080,172		0
2002	297,749	12,505,463	12,505,463	12,505,463		0
2003	248,837	10,451,154	10,451,154	10,451,154		0
2004	126,845	5,327,490	5,327,490	5,327,490		0

TGP Station 527

Port Sulphur, Louisiana

Re-calculation of 1995 - 2003 Storage Tank Emissions

Recalculated Tank T-6 Emissions based on historical throughputs

Emissions	1995	1996	1997	1998	1999*	2000	2001	2002	2003	2004
Working/Breathing Losses (lbs)	167732.0	198237.4	246564.3	434751.8	440525.0	0.00	0	0	0	0
Working/Breathing VOC Emissions (lbs)	110636.0	130757.4	162633.8	286762.3	72642.6	0.00	0	0	0	0
Flash VOC Emissions (lbs)	195475.6	404381.8	724825.0	1972667.4	502732.2	0.00	0	0	0	0
Total Emissions (tpy)	153	268	444	1130	288	0	0	0	0	0

* The Flash Gas Recovery Project was completed in March 1999; therefore, emissions from T-6 were controlled for 75% of the year. To estimate emissions, the uncontrolled emissions were first estimated and then adjusted for the controls being in place for 75% of the year.

Storage Tank T-4

Emissions	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Working/Breathing Losses (lbs)	53137	84643	94390	125755	126717	113821	108715	120992	113628	96348
Total Emissions (tpy)	26.5685	42.3215	47.195	62.8775	63.3585	56.9105	54.3575	60.496	56.814	48.174

Storage Tank T-3

Emissions	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total Emissions (tpy)	5	6	7	64	64	-	-	-	-	-

* Throughputs for T-3 were not available and therefore, emissions could not be recalculated. As such, the emissions reported in the EIS are presented.

Storage Tank T-3a

Emissions	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total Emissions (tpy)	-	-	-	-	-	0	0	0	0	

Summary

Storage Tank	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
T-6	153.0558075	267.5696152	443.7293975	1129.714864	287.6873708	0	0	0	0	0
T-4	26.5685	42.3215	47.195	62.8775	63.3585	56.9105	54.3575	60.496	56.814	48.174
T-3	5	6	7	64	64	-	-	-	-	-
T-3a	-	-	-	-	-	0	0	0	0	0